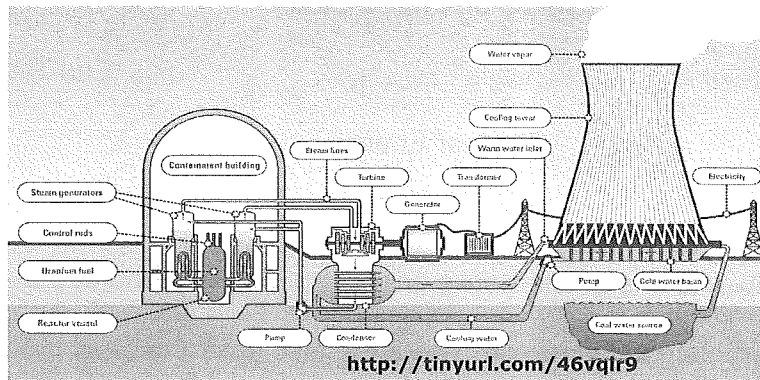


Science one world Essay

Nuclear Energy

Nuclear power is one of alternative energy alleviating resources such as oil and coal scarcity problem. (Henderson) There are also environmental problems related with resources creating greenhouse gases causing global warming. Therefore, people had to find solutions and nuclear energy has been used for generating electricity. Nuclear energy or atomic energy is created in a nuclear reaction which is changes can occur in structure of the nuclei of atoms. Nuclear energy is produced in two different ways which are natural ways and in man-made operation under human control. In a big hope encourages stop emitting greenhouse gases, scientists discovered nuclear energy which benefits our life. However, there are also a lot of limitations due to accidents causing big problems about radiating radioactivity which devastates environment in decades. Moreover, according to the most recent earthquake in Japan, it supports limitations of nuclear energy.

There are two main methods to create nuclear energy. For instance, in natural way, the Sun and stars make heat and light by nuclear reaction. Moreover, in man-made operation, machines called nuclear reactors, parts of nuclear power plants, generate electricity.

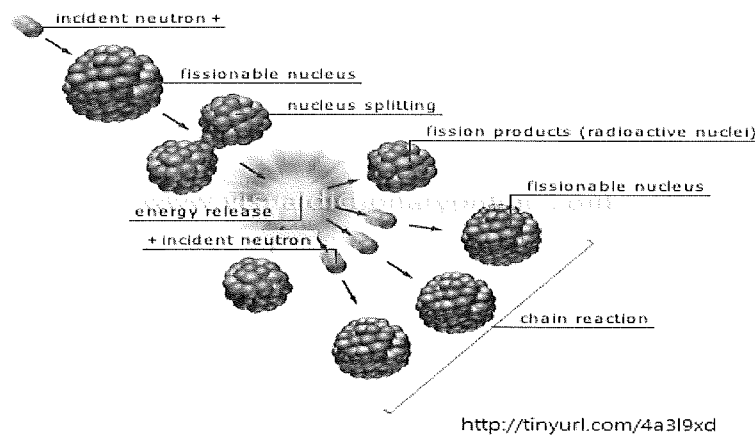


this is a picture of

how nuclear energy generate electricity

Man-made nuclear reaction also occurs in the explosion of atomic and hydrogen bombs. Nuclear energy is released by split of nuclei of atoms which is called nuclear fission. It plays significant role in nuclear reactor and atomic bomb. Nuclear fuels are used to undergo nuclear fission to produce energy. (Marshal) Nucleus of uranium is easily separated by shooting neutrons which release multiple neutrons and they split other uranium nuclei. This phenomenon is called a chain reaction.

Apps



This is the picture of nuclear fission

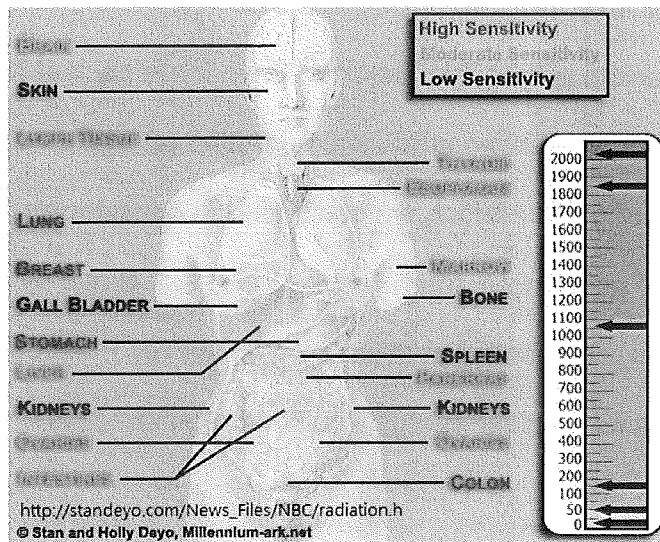
Moreover, utilizing energy would benefit us in many ways. The Earth has limited supplies of coal and oil. Nuclear power plants could still produce electricity

after coal and oil become scarce. Nuclear power plants need less fuel than ones which burn fossil fuels. Uranium is the main fuel used to undergo nuclear fission to produce energy and one tons of uranium produces more than energy produced by several million tons of coal or oil..Therefore, we don't need to consider energy scarcity of nuclear energy. Furthermore, many factories burns coal and oil and it create greenhouse gases which occurs global warming. However, if the power plant is well monitored and operated, nuclear energy would not release contaminants into the environment. (Pandit) Furthermore, it not only supports conserving environment but also advantages economically. There are alternative energy such as solar energy, and wind energy. However, they require expensive facilities to generate electricity. However, nuclear energy releases a million times more energy as compared with other alternative energy. Hence, large amount of electricity can be generated by little amount of fuel. (Pandit) Furthermore, nuclear energy uses uranium to create heat and it has huge effect when it is exploded. Also, nuclear fuel is inexpensive and easy to transport. (Pandit)

Benefits

However, nuclear energy is limited due to several problems. The biggest problem is nuclear weapon. Although some people believes that it keep peace in our world, it will have devastating impact if it is exploded by accident. USA and Russia own approximately 50,000 nuclear bombs and now they are biggest threat to the world because it can cause large devastation. Nuclear explosion produces radiation which is very dangerous to the environment as well as human health, and remains for thousands of years.

limitations



this is the picture of effect of radiation to human body

-you should explain a bit

Radioactivity represents intensity of radioactive rays or radiation. Highly radioactive elements such as uranium and plutonium have piping hot nuclei so it is unstable and it is destroyed by itself. When it is exploded, it releases radioactive rays and ability to emit radioactive rays is called radioactivity. The released radioactive rays some times directly work with human cell and impact to cells or works with water (H_2O) in human body and impacts function of cells. Furthermore, nuclear power plants have adjacent relationship with radiation because it deals with nuclear elements. Nuclear reactors have waste disposal problems. It produces nuclear waste products which emits large amount of radioactive. The radioactivity of these elements reduces over a period of time, after decaying. Thus, they have to be safely stored but it is too difficult to store nuclear waste for a long period. Currently, many nuclear wastes are stored in special cooling pools at the nuclear reactor but it only lasts for about forty to fifty years.

(Pandit).

In addition, nuclear energy impacts our life economically. According to the information above, it benefits us costly because it needs little amount of resource to generate electricity and we have large amount of uranium. However, it also

disadvantages us if it causes accident. The Chernobyl disaster that occurred at Chernobyl Power Plant in 1986 in Ukraine was the worst power plant disaster. The explosion released high amount of radiation in environment it impacted other countries also. After the disaster, it needed foreign support to serve devastated environment and reduce damage caused by emitted radiation. The radioactive infected area still can't be used. Furthermore, currently, there was earthquake in Japan had a lot of victims. It not only had a lot of victims but also had big problem which is release of radiation from destroyed nuclear power plant. Therefore, it needed a lot of financial assistance to prevent release of radiation continuously. Fortunately, Japan is a developed country so it has less impact compared with earthquake in developing countries. However, because earthquake keep happens in other countries on seismic belt after earthquake in Japan, nuclear energy would raise more problems. Furthermore, nuclear energy interacts with environmental and cultural issue. To give Japan's earthquake as an example, radiation from nuclear power plant not only pollutes Japan, it will pollute other countries because radiation will be transferred by wind. The wind direction is toward America so it will transfer radiation from Japan to America. Moreover, most of Korean people had enmity toward Japan because Korea was a colony of Japan and they gave devastating impact on Korea. However, because the earthquake impacted a lot of people and radiation impacts their environment, many Korean people started to cheer Japan and there are a lot of donation program in Korea. Therefore it represents that nuclear energy interacts with cultural issue between Korea and Japan. Overall, in my opinion, nuclear energy can be the most successful discovery or the most threatening discovery based on how it is utilized in our society.

One
World

Word count: 1075 words

Work Cited

"Chernobyl disaster." *Issues: Understanding Controversy and Society*. ABC-CLIO, 2011.

Web. 23 Mar. 2011.

Henderson, Harry. "Nuclear Power: Overview." *Issues: Understanding Controversy and Society*. ABC-CLIO, 2011. Web. 23 Mar. 2011.

Marshall, Jim. "power generation." *Issues: Understanding Controversy and Society*.

ABC-CLIO, 2011. Web. 23 Mar. 2011. The article describes how nuclear power generated by nuclear energy in detail. The nuclear energy is created by nuclear reactor in power plant which works for nuclear fission. The nuclear fission is related with chain reaction and it creates heat. The heat boil the water and the steam produced powers turbine which generates electricity. The article also describes other alternative energy such as solar energy. Moreover, the article also includes information about fossil fuel which creates greenhouse gases briefly. The article helped me to understand how nuclear energy generates electricity throughout reading some other alternative energy.

Pandit, Madhura. "Advantages and Disadvantages of Nuclear Energy." *Buzzle.com*. N.p., n.d.

Web. 22 Mar. 2011. <<http://www.buzzle.com/articles/advantages-and-disadvantages-of-nuclear-energy.html>>. The article provides advantage and disadvantage of the nuclear energy in detail. It also shows Einstein's famous equation because it helps to calculate amount of energy released during a nuclear reaction. The article briefly describes how nuclear energy is generated and history of nuclear energy. The article states that nuclear energy benefits our society costly, and environmentally because

little amount of nuclear fuel can generate electricity without emitting greenhouse gases which pollutes atmosphere. However, the article also mentioned disadvantage of nuclear energy. Nuclear can be used for nuclear weapon which is possible to result a large scale devastation and nuclear waste produced by nuclear reactor pollutes environment. The article helped me to organize the advantage and disadvantage of nuclear energy. At the end of the article, the writer stated that only the future will determine whether nuclear energy is beneficial or not.

Good work

Criterion A: One World

	1-2	3-4	5-6
Science Application	The student gives a basic description of how science is applied to addressing a local or global issue	The student gives a complete description of how science is applied to addressing a local or global issue	The student gives a detailed explanation of how science is applied to addressing a local or global issue 5
Benefits and Limitations of Science	The student states some benefits or limitations of science in addressing the identified issue	The student describes some benefits or limitations of science in addressing the identified issue 4	The student explains some benefits and limitations of science in addressing the identified issue
One World Factors	The student indicates little or no interaction of the applications of science with the following factors: social, economic, political, environmental, cultural and ethical	The student describes the interaction of the application of science with at least one of the following factors: social, economic, political, environmental, cultural and ethical	The student discusses the interaction of the application of science with some of the following factors: social, economic, political, environmental, cultural and ethical 5

Note in the preceding criteria:

State is defined as "To give a specific name, value or other *brief answer* without explanation or calculation."

Describe is defined as "to give a *detailed* account"

Discuss is defined as "To give an account including, where possible, a *range of arguments* for and against, the *relative importance* of various factors and *comparisons* of alternative hypotheses."

Explain is defined as "to give a *clear* account including *causes and reasons* or *mechanisms*."

Social is defined as "of or pertaining to the life, welfare, and relations of human beings in a community."

Economic is defined as "pertaining to the production, distribution, and use of income, wealth, and commodities."

Political is defined as "of, pertaining to, or involving the state or its government."

Environmental is defined as "of, relating to, or associated with the environment."

Cultural is defined as "of, relating to, or associated with the behaviors and beliefs characteristic of a particular social, ethnic, or age group."

Ethical is defined as "pertaining to or dealing with morals or the principles of morality; pertaining to right and wrong in conduct."

Criterion B: Communication in Science

	1-2	3-4	5-6
Scientific Language	The student attempts to communicate scientific information using some scientific language	The student communicates scientific information using scientific language	The student communicates scientific information effectively using scientific language correctly 5
Symbolic and/or Visual Aids	The student presents some of the information in an appropriate form using some symbolic or visual representation when appropriate	The student presents most of the information appropriately using symbolic or visual representation according to the task 4	The student presents all the information appropriately using symbolic and/or visual representation accurately according to the task
Use of Sources	The student attempts to acknowledge sources of information but this is inaccurate	The student acknowledges sources of information with occasional errors	The student acknowledges sources of information completely and appropriately 5

Note in the preceding criteria:

Scientific Language is defined as scientific terminology, vocabulary, symbolic language, units of measure."

Name: _____ Assignment: Nuclear Energy Date: March 2011 A: _____ B: _____

*The accepted format for acknowledging sources is the **MLA referencing** format.